

U.S. Application No. 09/675,908  
Filed September 29, 2000

**Amendments to the Specification:**

The specification is amended by striking the heading on page 1 incorrectly indicating that the application is a provisional application. A corrected page 1 is enclosed herewith. The specification is further amended by labeling Fig. 9 "Prior Art." A corrected drawing will be timely provided.

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**METHOD AND SYSTEM FOR SIMULATING A  
HYDROCARBON-BEARING FORMATION**

5           This application claims the benefit of U.S. Provisional Application No.  
60/159,035 filed on October 12, 1999.

**FIELD OF THE INVENTION**

          This invention relates generally to simulating a hydrocarbon-bearing  
formation, and more specifically to a method and system for simulating a  
10   hydrocarbon-bearing formation under conditions in which a fluid is injected into the  
formation to displace resident hydrocarbons. The method of this invention is  
especially useful in modeling the effects of viscous fingering and channeling as the  
injected fluid flows through a hydrocarbon-bearing formation.

**BACKGROUND OF THE INVENTION**

15           In the primary recovery of oil from a subterranean, oil-bearing formation or  
reservoir, it is usually possible to recover only a limited proportion of the original oil  
present in the reservoir. For this reason, a variety of supplemental recovery techniques  
have been used to improve the displacement of oil from the reservoir rock. These  
techniques can be generally classified as thermally based recovery methods (such as  
20   steam flooding operations), waterflooding methods, and gas-drive based methods that  
can be operated under either miscible or immiscible conditions.

          In miscible flooding operations, an injection fluid or solvent is injected into the  
reservoir to form a single-phase solution with the oil in place so that the oil can then